

1 1. A system interface comprising:

- 2 (a) a plurality of front end directors adapted for coupling to a host computer/server;
- 3 (b) a plurality of back end directors adapted for coupling to a bank of disk drives;
- 4 (c) a data transfer section having cache memory, the cache memory being coupled to
- 5 the plurality of front end and back end directors;
- 6 (d) wherein the front end and back end directors control data transfer between the host
- 7 computer/server and the bank of disk drives, such data passes through the cache
- 8 memory in the data transfer section as such data passes between the host computer and
- 9 the bank of disk drives;
- 10 (e) a cache memory manager having therein a memory for storing a map maintaining a
- 11 relationship between data stored in the cache memory and data stored in the disk
- 12 drives;
- 13 (f) wherein the cache memory manager provides an interface between the host
- 14 computer, the bank of disk drives, and the cache memory for determining for the
- 15 directors whether data to be read from the disk drives, or data to be written to the
- 16 disk drives, resides in the cache memory;
- 17 (g) a packet switching network; and
- 18 (h) wherein the cache memory manager, plurality of front end directors, plurality of
- 19 back end directors and cache memory are interconnected through the packet
- 20 switching network

1 2. The system recited in claim 1 wherein the cache memory manager is disposed in at  
2 least one of the back end directors.

1 3. The system recited in claim 1 wherein the memory in the cache memory manager has  
2 a plurality of, n, locations, each one of the locations corresponding to a location in the  
3 disk drives, each one of the locations in the memory in the cache memory manager being  
4 adapted to store therein a disk address and an indication as to whether data stored or to be  
5 stored in such disk location is in the cache memory.

1 4. The system recited in claim 3 wherein the logical disk address provided by the host  
2 computer/server is hashed and the memory in the cache memory manager comprises a

3 plurality of,  $m$ , tables, each one of such  $m$  tables has a plurality,  $n_m$ , locations where the  
4 sum of the locations of the  $m$  tables equals  $n$ .

1 5. The system recited in claim 4 wherein, the cache memory manager, in response to a  
2 query of the memory therein provides an indication as to whether data stored or to be  
3 stored in such disk location is in the cache memory, and the hashed logical disk address  
4 provided by the host computer/server is fed to address one of the  $m$  tables in the cache  
5 memory manager.

1 6. The system recited in claim 1 wherein the system interface includes a message network,  
2 such message network operating independently of the data transfer section and being  
3 coupled to the plurality of front end and back end, the front end and back end directors  
4 for controlling data transfer between the host computer/server and the bank of disk drives in  
5 response to messages passing between the front end directors and the back end directors  
6 through the messaging network to facilitate data transfer between host computer/server and  
7 the bank of disk drives, such data passing through the cache memory in the data transfer  
8 section as such data passes between the host computer and the bank of disk drives.